RISK FOOTPRINT™ REPORT

Accelerate Your Resilience

REAL-TIME WEATHER & COASTAL FLOODING | weather.gov | noaa.gov

1700 Convention Center Drive, Miami Beach, Florida

Risk Summary Snapshot

	Aggregate	FEMA NRI Risk	Pluvial	Fluvial	Tidal Flooding	Storm Surge	FEMA Flood	Tsunami	Wind Zone	Tornado	Wildfire	Earthquake	2060 SLR	2050 Heat	2050 Rainfall	2050 Drought
Property:	5	High	Medium	Low	Medium	High	High	Low	Medium	Medium	Low	Low	High	Low	Low	High
Neighborhood:	7	High	High	Low	High	High	High	Low	Medium	Medium	Medium	Low	High	Low	Low	High

Current Risks / *Future Risks*

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QUESTIONS?
WE'RE HERE TO HELP

CALL:
1-844-732-7473
RISK FOOTPRINT™
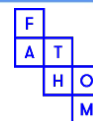
RISK FOOTPRINT™ | nearmap | FATHOM | TRUE Flood Risk

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION'S (NOAA) PARTNER

WRN WEATHER-READY NATION

3/24/2025

Dear Adam,

Thank you for purchasing the new RiskFootprint™ Report, the state-of-the-art assessment for floods, natural hazards, extreme weather, and climate change impacts. You have taken an important first step to better understand the risks facing your residential, commercial, industrial, or governmental property. The information found in this Report will empower you to make your property safer, more sustainable, and resilient – and to protect its market value in a changing environment.

The RiskFootprint™ Report is generated from our automated, proprietary model that screens properties for a variety of potential hazards and provides actionable intelligence for portfolio risk management, property transfer due diligence, loan and insurance underwriting and decisions relating to investments in risk/claims reducing, resilience measures.

If your RiskFootprint™ Report indicates that your property faces risks, our Advisory Services team of professionals can assist you with our six-step, B-Resilient™ Solutions process to help you take appropriate cost-effective risk mitigation and adaptation actions.

If you would like to find out more about our innovative products and services, contact customerservice@riskfootprint.com.

Sincerely,

Albert J. Slap

Albert J. Slap, President
844-SEA-RISE (732-7473)
albertslap@riskfootprint.com
www.riskfootprint.com

HEAVY RAINFALL (PLUVIAL) FLOOD RISK and POOR DRAINAGE AREAS

**PLUVIAL
MAX INUNDATION DEPTH
(METERS)**

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4+

POOR DRAINAGE HOTSPOTS

- VERY POOR
- POOR
- MODERATE
- MILD
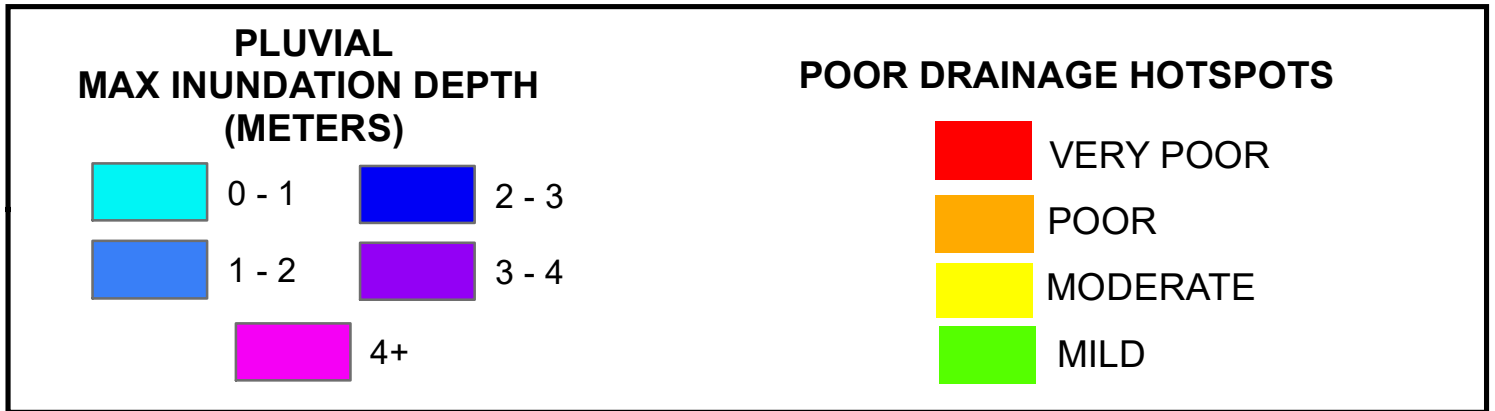
500-Year Interval Pluvial Flood Risk*
See note re: Fathom Maps on page 10

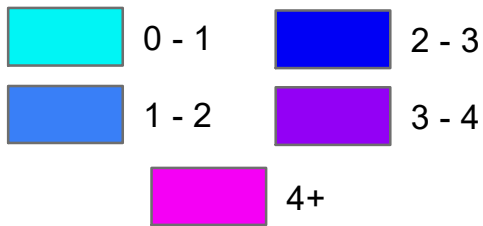
380 Feet

Poor Drainage Hotspots

380 Feet

RISK FOOTPRINT™
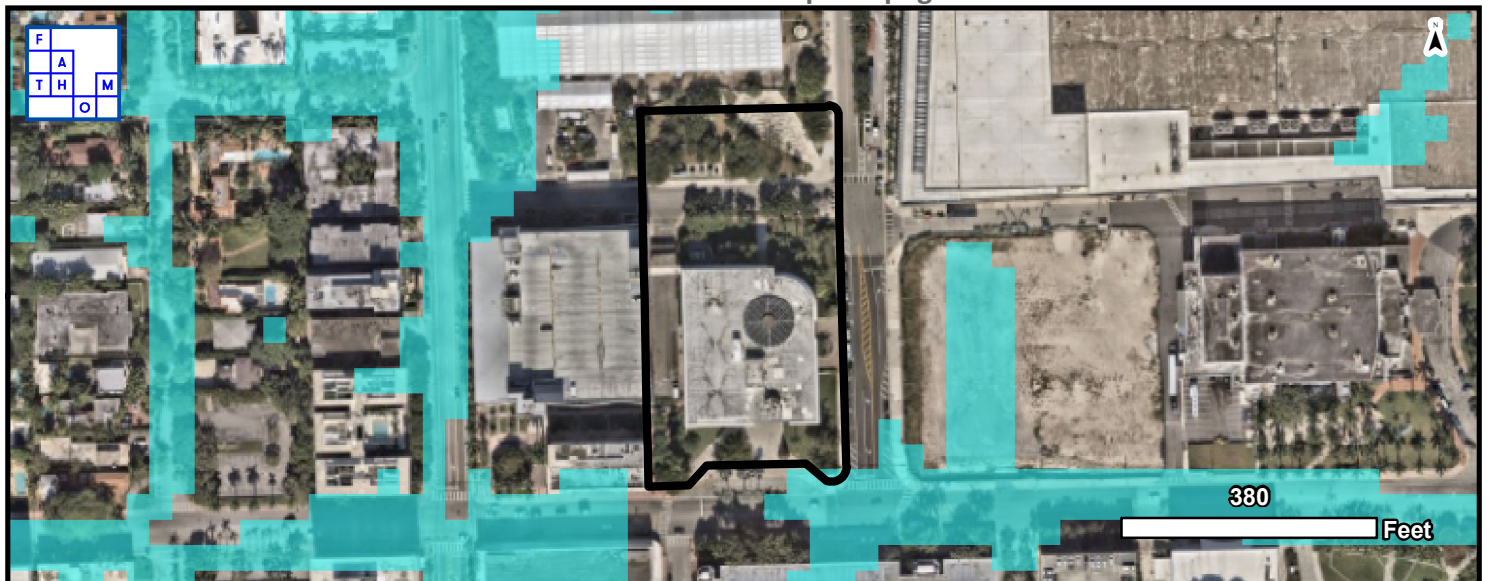
RIVERINE (FLUVIAL) FLOOD RISK, COASTAL FLOOD RISK
and FEMA FLOOD HAZARD ZONES

FLUVIAL & COASTAL
MAX INUNDATION DEPTH (METERS)

0 - 1		2 - 3	
1 - 2		3 - 4	
	4+		

FEMA FLOOD HAZARD ZONES

- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard
- < 0.2 Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Area of Undetermined Flood Hazard
- Special Floodway
- Regulatory Floodway
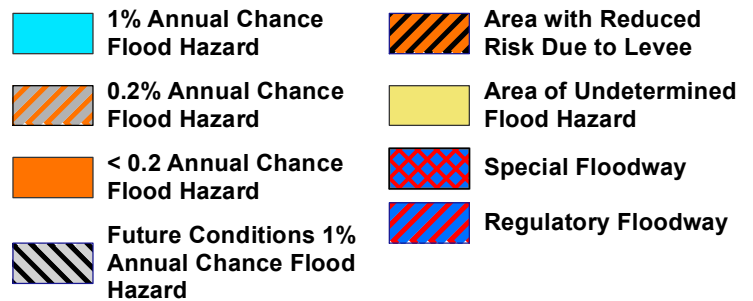
500-Year Interval Fluvial Flood Risk*
See note re: Fathom Maps on page 8

575 Feet
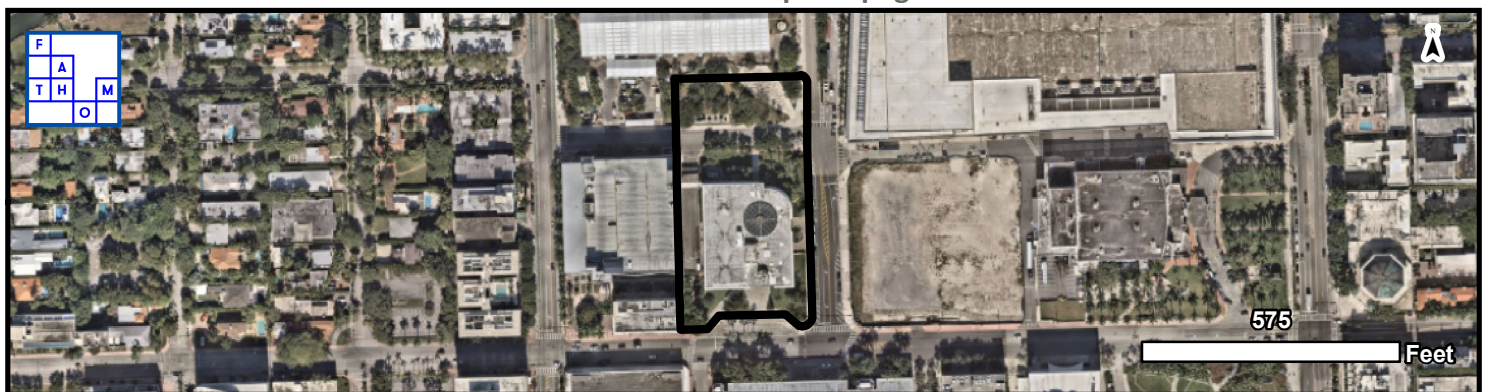
500-Year Interval Coastal Flood Risk

575 Feet

FEMA Flood Hazard Zones

AE

8 BFE

570 Feet

RISK FOOTPRINT™
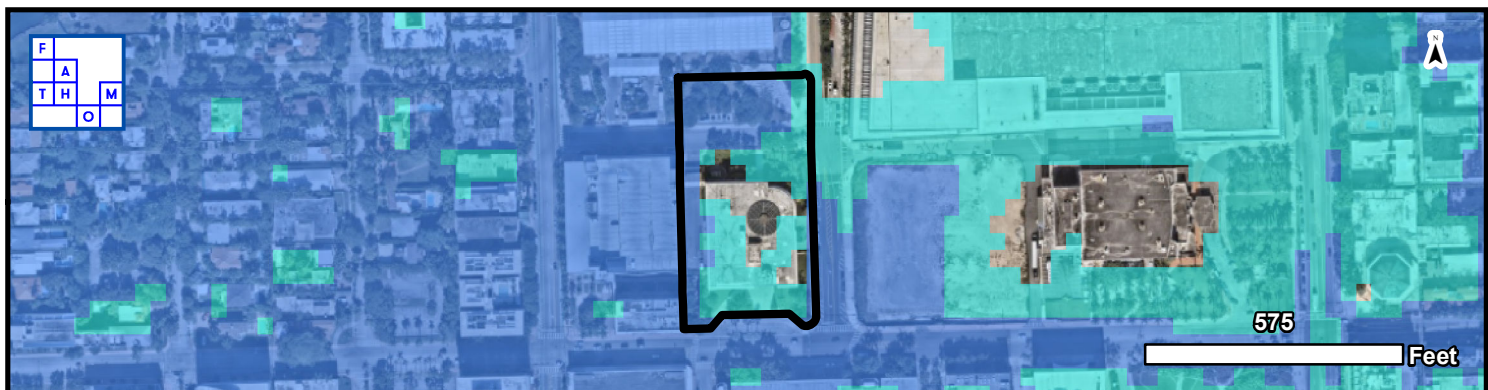
Tidally-Influenced Flooding Potential*

Illustrations of flooding below include the effect of levees and other flood control measures to the extent they are displayed in the NOAA SLR Viewer (see page 10 for Glossary & References)
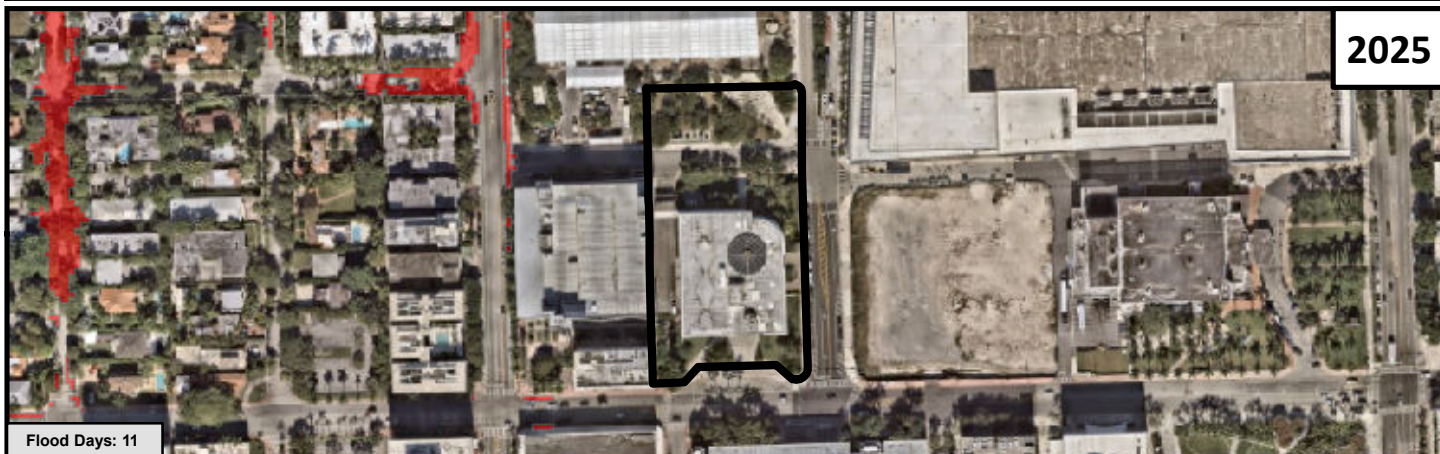
Current Year High Tide Flooding

NOAA flooding threshold for this location is 53 cm (21 in) above Mean Higher High Water (MHHW). High Tide flooding occurs when high tides exceed the flooding threshold.

MHHW at Miami Beach, FL is 0.3 ft above NAVD88 (North American Vertical Datum of 1988)

High Tide Flooding
(MHHW + Flooding Threshold)

2025

Flood Days: 11

Future Projected Flooding Due to Sea Level Rise (SLR)

Areas representing inundation as a result of projected SLR in 2040 & 2060.

Flood Days = Number of days tidal flooding is expected with SLR.

Projected SLR = Estimated NOAA SLR projection for the nearest tide gauge.

SLR Flooding Potential = Relative to NAVD88

SLR Flooding Potential
(MHHW + Flooding Threshold + SLR)

2040

Miami Beach, FL
Tide Gauge Projections

Flood Days: 85

Projected SLR: 10 in

SLR Flooding Potential: 2.9 ft

350
Feet

2060

Miami Beach, FL
Tide Gauge Projections

Flood Days: 360

Projected SLR: 22 in

SLR Flooding Potential: 3.9 ft

350
Feet

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Storm Surge

Maximum Possible Hurricane Storm Surge (2025)

Per data from the US National Hurricane Center:
Annual probability of Category 1 winds and higher: **23.0%**
Annual probability of Category 3 winds and higher: **13.0%**

NAVD88 - North American Vertical Datum of 1988   AGL - Above Ground Level

INUNDATION (AGL)

- 0 - 1 ft
- 1 - 2 ft
- 2 - 4 ft
- 4 - 8 ft
- 8 - 12 ft
- > 12 ft
- Levee Area

Category 1
MAX INUNDATION:
0 FT (AGL)
360 Feet

Category 3
MAX INUNDATION:
3 FT (AGL)
360 Feet

Category 5
MAX INUNDATION:
7 FT (AGL)
360 Feet

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FEMA National Risk Index (NRI)
Census Tract View

1700 Convention Center Drive is in Census Tract T12086004206

Site	Very High	Relatively High	Relatively Moderate	Relatively Low	Very Low	Insufficient Data
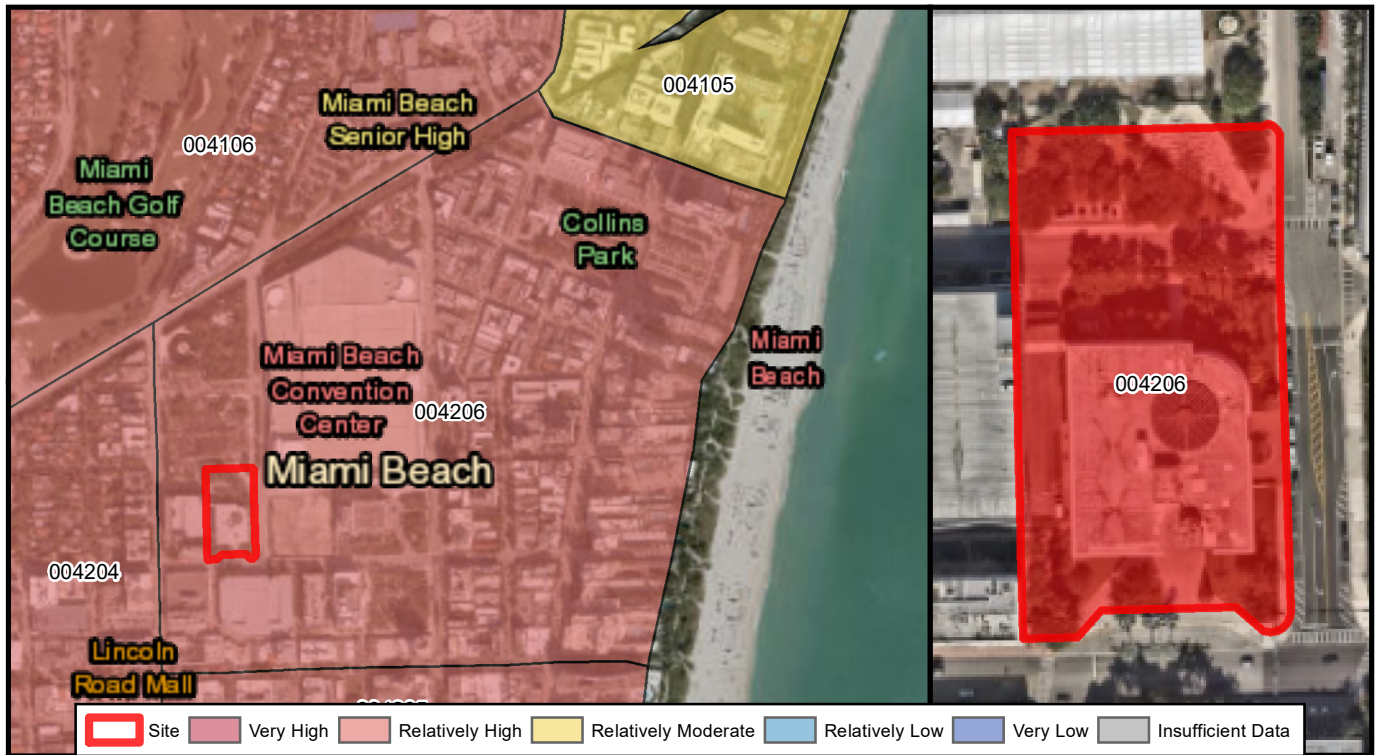
Risk Index is Relatively High

NRI Hazard Ratings

Avalanche:	Heat Wave:	Strong Wind:
Not Applicable	No Rating	Very Low

Coastal Flooding:	Hurricane:	Tornado:
Relatively Low	Relatively High	Relatively Low

Cold Wave:	Ice Storm:	Tsunami:
Relatively Low	Not Applicable	Insufficient Data

Drought:	Landslide:	Volcanic Activity:
No Rating	Relatively Moderate	Not Applicable

Earthquake:	Lightning:	Wildfire:
Very Low	Relatively Low	No Rating

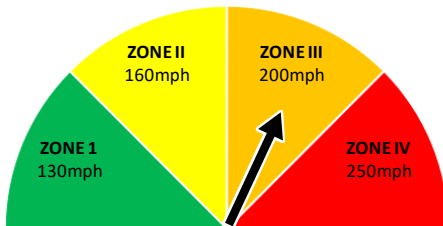| Hail:	Riverine Flooding:	Winter Weather:
Very Low	Relatively High	No Rating

Click the link below for the comprehensive NRI report for this area:
https://hazards.fema.gov/nri/report/viewer?dataLOD=Census%20tracts&dataIDs=T12086004206

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Natural Hazards and Community Resilience

FEMA Wind Zone: III

ZONE II
160mph

ZONE III
200mph

ZONE 1
130mph

ZONE IV
250mph

FEMA Wind Zones reflect historical number and strength of extreme windstorm events. Design building code requirements for this location are typically lower.

ASCE Design Wind Speed: 170 mph

Moderate
110 to
130 mph

High
130 to
160 mph

Low
Up to
110 mph

Very High
160+ mph
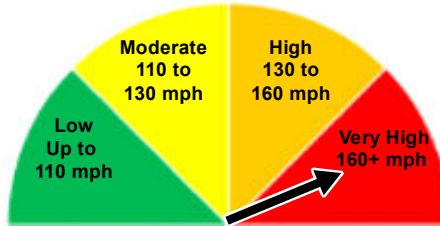
(3-second ultimate design wind speed for Risk Category II buildings) Wind speed corresponds to 7% probability of occurrence in 50 years. (ASCE 7-16)
This site is NOT in a special wind region.
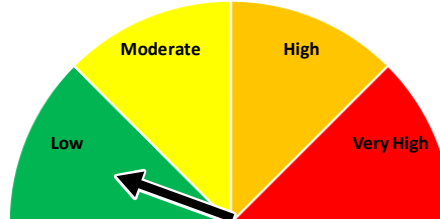This site is in a hurricane-prone region.

Tornado Risk: 2 occurrence(s)

Moderate

High

Low

2-3

4-7

Very High

0-1

>7
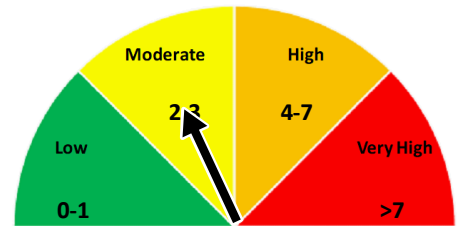
The 1,000-square-mile area surrounding the property has recorded 2 EF2 or higher tornadoes in the past 30 years

EPA Air Quality Index

Unhealthy
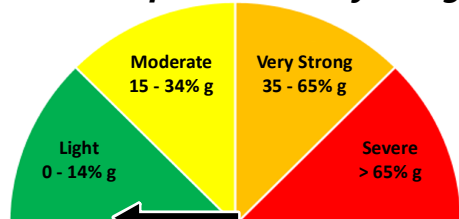1%

Moderate
17%

Very
Unhealthy
0%

Good
72%

Hazardous
0%
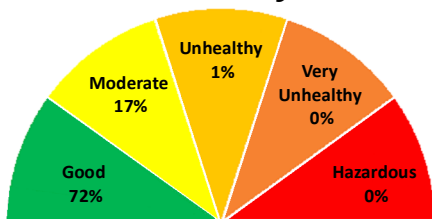
The latest Air Quality Index annual summary for this location.

Wildfire Potential: Low

Moderate

High

Low

Very High

Wildfire Potential is a measure of wildfire likelihood and intensity

Earthquake Intensity: 0% g

Moderate
15 - 34% g

Very Strong
35 - 65% g

Light
0 - 14% g

Severe
> 65% g

Peak ground acceleration (PGA) with 10% probability of exceedance in 50 years. Scale uses a unit of g.
(g - The earth's gravity acceleration from the ground movement)

NRI Community Resilience

Moderate

High

Low

Very
High

Very
Low

N/A
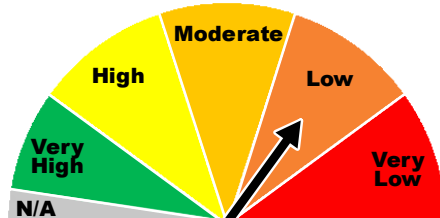
Miami-Dade County Community Resilience is Relatively Low

Community Rating Score: 5

NO SCORE
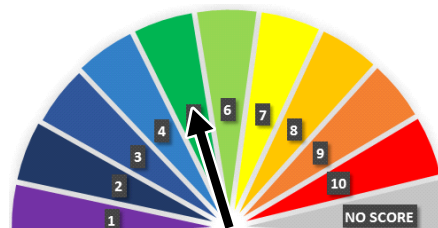
This property is potentially eligible for a 25.0% reduction in flood insurance premium.

Landslide Susceptibility

Moderate

High

Low

Very High
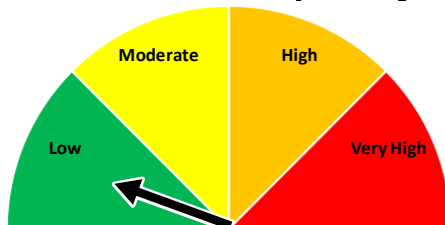
Density of Landslide Susceptible areas in the 90-meter grid where the property is located in the USGS Landslide terrain map.

Water Stress

Moderate

High

Low

Extreme
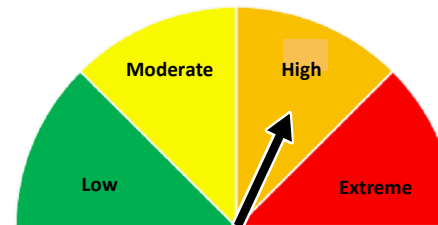
Difference between available renewable surface and groundwater supplies and total water demand – from World Resources Institute (WRI)'s Aqueduct Water Risk Atlas.

Property Elevation:

Land elevation within the property boundary ranges from 2.8 ft to 9.6 ft. The average elevation of this property is 4.8 ft. Elevations use North American Vertical Datum of 1988 (NAVD 88). The first floor height (FFH) of this property is 0.07 ft above ground level.

See page 12 for Glossary & References

RISK FOOTPRINT™

Future Climate Change Impacts

Projections By Emission Scenarios (RCPs)*

Extreme Heat	2030	2040	2050
RCP 4.5	Low	Low	Low
RCP 8.5	Low	Low	Moderate

Extreme Rainfall	2030	2040	2050
RCP 4.5	Low	Low	Low
RCP 8.5	Moderate	Moderate	Moderate

Drought	2030	2040	2050
RCP 4.5	Low	High	High
RCP 8.5	Low	Low	Low

Metric Ranking Guidelines

* See Page 10 for Glossary & References

Extreme Heat	Less than 25%	25% - 50%	Greater than 50%
% of Global Climate Models predicting 20% or greater increase in days of maximum air temperature above 85° F (compared with 2021)	Low	Moderate	High
Extreme Rainfall	Less than 25%	25% - 50%	Greater than 50%
% of Global Climate Models predicting 20% or greater increase in days of annual maximum daily rainfall (compared with 2021)	Low	Moderate	High
Drought	0.0 or Greater	Between 0.0 and -0.2	-0.2 or Less
Mean annual 12-month Standard Precipitation Index (SPI) compared with 2021	Low	Moderate	High

RISK FOOTPRINT™

RiskFootprint™ Glossary and References

Descriptions below include links to latest available data sources for respective hazards.

Cover Page – Risk Summary Snapshot – AGGREGATE RISK SCORE – The Aggregate Risk Score is presented separately for both the property and the neighborhood (within a ½ mile radius of the property boundary). It is a summation of the Risk Zones scored for the 15 hazards in the table as follows:

0 "Red" Zones	Low Aggregate Risk
1 to 3 "Red" Zones	Moderate Aggregate Risk
4 or more "Red" Zones	High Aggregate Risk

Note that even if the Aggregate Risk Score is "yellow", with only 1 red zone risk, e.g., for storm surge risk, this could be significant to the property owner. Also, sometimes the property in question is at low Aggregate Risk, but the neighborhood is at high risk, possibly causing ingress/egress or supply chain problems.

FATHOM PLUVIAL (HEAVY RAINFALL), FLUVIAL (RIVERINE) & COASTAL FLOOD RISK - (https://www.fathom.global).
Fathom Global, a UK-based division of Swiss Re, is a leading provider of flood risk intelligence for resilience against water perils. **Fathom's updated US Flood Map 3.0** operates at an impressive **~10-meter resolution** (approximately 1/3 arcsecond data), allowing for improved accuracy in assessments of both inland and coastal flooding. Fathom has compiled the most accurate digital terrain model of the US called **FABDEM+** which blends **up-to-date LiDAR imagery** with cutting-edge terrain data in areas where local terrain data are unavailable. Fathom's models are grounded in extensive scientific research and utilize peer-reviewed data sources.

RiskFootprint™ reports for US locations with **Fathom maps** show the areal extent and depth of flooding under current climate conditions for the 500-year flood i.e. at an annual return frequency of 0.2%, to provide a screening-level worst-case scenario. These maps also include the impact of known levees and dams for fluvial and coastal flooding based on data from the US Army Corps of Engineers National Levee Database.

Page 3 – PLUVIAL (HEAVY RAINFALL) FLOOD RISK – Potential for heavy rainfall flooding above ground level (AGL) of the property with 0.2% probability, derived from Fathom flood models (www.fathom.global). The term "500-year flood" means that, statistically speaking, a flood of that magnitude (or greater) has a 1 in 500 chance, or 0.2% probability, of occurring in any given year. https://www.usgs.gov/special-topics/water-science-school/science/floods-and-recurrence-intervals

Page 3 - POOR DRAINAGE HOTSPOTS – "Poor Drainage Hotspots" identifies hyper-local areas of a property where water from heavy rainfall will tend to pond and fail to drain properly, sometime resulting in standing water for days. The RiskFootprint™ report uses a high-resolution elevation model along with soil and groundwater data from the Natural Resources Conservation Service to assign risk within our proprietary, flood hotspot methodology (NRCS drainage classes).

Page 3 – TSUNAMI RISK – (website) This report includes a frame showing Tsunami Risk potential only for properties with High Tsunami risk. For the risk summary snapshot, areas within a Tsunami Design Zone (the Zone) are scored as "High Risk", and areas outside the Zone are scored as "Low Risk". There is no "Medium" category. Inland locations situated more than 25 miles from the nearest coastline, for which the ASCE/SEI 7-22 Standard shows no Tsunami potential, will return N/A (not applicable).

Tsunami risk is modeled on the ASCE Tsunami Design Geodatabase Version 2022-1.0 of geocoded reference points of Offshore Tsunami Amplitude and Period, and Runup Elevation and associated Inundation Limit of the Tsunami Design Zone, that comprises an integral part of the tsunami design provisions of the ASCE/SEI 7-22 Standard.

Page 4 – **FLUVIAL (RIVERINE) FLOOD RISK –** Potential for river flooding above ground level (AGL) of the property with 0.2% probability because of an overflowing river, derived from Fathom Version 3 flood models (www.fathom.global).

Page 4 – **COASTAL FLOOD RISK –** Potential for inundation from the ocean above ground level (AGL) with 0.2% probability primarily driven by astronomical tides, storm surges, wind setup and wave setup, runup and overtopping, derived from Fathom Version 3 flood models (www.fathom.global).

FUTURE YEARS & CLIMATE SCENARIOS - Fathom 3.0 also introduces a **Climate Dynamics framework**, enabling users to **customize** data based on varying regulatory requirements. RiskFootprint™ flood perils for US locations can be customized for specific combinations of future years, climate scenarios, and temperature changes, tailoring the analysis to customers' specific needs. Contact customerservice@riskfootprint.com for customized flood assessments for future years.

Page 4 - FEMA FLOOD HAZARD BOUNDARIES – (overview) (definitions) These zones are derived from the National Flood Hazard Layer (NFHL) depicted on a community's Flood Insurance Rate Map (FIRM).
Note: Flood defenses in the FEMA maps may indicate a lower risk of flooding at a particular location. Flood defenses, however, may or may not be operational or competent at any given time and, flood waters may overtop defenses, thereby flooding areas with lower modeled risks.
Note: The RiskFootprint™ Report helps you dimension risk of loss from flood hazards and better understand insurance needs. It is not appropriate, however, for insurance placement using the National Flood Insurance Program (NFIP), which exclusively utilizes effective FEMA flood maps for underwriting. Most commercial and industrial buildings do not rely on NFIP insurance. FEMA flood maps, therefore, are only one view of flood risks among others presented herein.

Page 5 – CURRENT AND FUTURE TIDALLY-INFLUENCED FLOODING POTENTIAL – Modeled potential for current year "High Tide Flooding" and

tidal flooding due to future Sea Level Rise (SLR) in 2040 and 2060. The methods, models and mapping are derived from the latest data and tools provided by NOAA and NASA (2022) and the *NOAA Sea Level Rise Viewer* https://bit.ly/3N2jD5U

NOAA and NASA data sources used for calculation of Flooding Potential are:
Height of Mean Higher High Water relative to NAVD88 at the nearest tide gauge -
https://tidesandcurrents.noaa.gov/datums.html?

NOAA Flooding Threshold - https://sealevel.nasa.gov/flooding-days-projection/

NOAA Sea Level Rise (SLR) Projections -
https://api.tidesandcurrents.noaa.gov/dpapi/prod/webapi/product/slr_projections.json?units=english&report_year=2022&scenario=intermediate-high

Flood Days = Number of days tidal flooding with SLR is expected at the nearest tide gauge – https://sealevel.nasa.gov/flooding-days-projection/

Notes:
1. Projections of flooding potential in the RiskFootprint™ report are based on the NOAA "minor flooding" threshold. Flooding thresholds are national flood thresholds derived from NOAA Technical Report NOS CO-OPS 086: Patterns and Projections of High Tide Flooding Along the U.S. Coastline Using a Common Impact Threshold. (February 2018).
2. Illustrations of flooding in areas with levees should be reviewed together with NOAA's "Leveed Areas Disclaimer".
3. Inland locations situated more than 25 miles from the nearest coastline, for which the NOAA SLR Viewer shows no flooding potential within one mile of the property boundary will return N/A (not applicable) for data on this page.

Page 6 - **HURRICANE STORM SURGE** – Potential for flooding on the property in the current year because of hurricane storm surges carrying ocean water inland. The RiskFootprint™ Report utilizes data from the National Storm Surge Maps (Version 3) that has been developed by the National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service's (NWS) National Hurricane Center. The data is derived from the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model version 3 *(latest version).*

The SLOSH model is a numeric model that combines atmospheric pressure, size, forward speed, and hurricane track data to model potential wind fields that then drive storm surge. The SLOSH model can be run on historic, hypothetical, or predicted hurricanes and at different locations to understand the influence of shoreline features, like bridges, roads, and inlets. SLOSH outputs are determined based on Category 1, 3, and 5 hurricanes. Hurricane categories are based on the Saffir-Simpson Wind Scale, a 1 to 5 rating based on a hurricane's maximum sustained wind speed. For areas located outside of the extent of each respective SLOSH output, the maximum inundation value will be returned as "N/A" (not applicable).

HISTORIC HURRICANE STRIKE PROBABILITY – The Risk Footprint™ Hurricane Strike statistics are derived from 110 years of climatological data from the National Hurricane Center. https://www.nhc.noaa.gov/aboutnhcprobs5.shtml.

Page 7 – FEMA NATIONAL RISK INDEX - The National Risk Index is a dataset and online tool designed and built by FEMA to help illustrate the U.S. communities most at risk for 18 natural hazards. The Risk Index leverages available source data for natural hazard and community risk factors to develop a baseline relative risk measurement for each U.S. County and Census tract, to help users better understand the natural hazard risk of their communities. https://hazards.fema.gov/nri/
Calculation of FEMA NRI Risk Index:
Risk = Expected Annual Loss x Social Vulnerability x $\dfrac{1}{Community\ Resilience}$

Source: FEMA National Risk Index Technical Documentation Mar 2023

Page 8 – NATURAL HAZARD RISK METERS

FEMA WIND ZONES – (website**)** The United States is divided into four Wind Zones created by FEMA for construction purposes throughout the country. Buildings in their respective wind zones must be able to withstand the maximum wind speed as indicated by FEMA. Note that older buildings may not have been designed to these standards.

COMMUNITY RATING SYSTEM – (website) The Community Rating System (CRS) awards points for steps taken by municipalities to manage the flood plain to reduce the community's risk. Flood insurance rates are discounted for participating municipalities that have accumulated points, thereby saving homeowners on NFIP flood insurance premiums. You should make sure your insurance agent is providing you with the appropriate discount.

NRI COMMUNITY RESILIENCE – (website) is a relative measure of the community that is associated with the parcel compared to all other communities at the nationwide level for its resilience to natural hazards. It is used in FEMA's National Risk Index (website), which identifies communities most at risk to natural hazards. Commonly, the community is a county, but depending on the location, may be a parish, borough, or an independent city. Community Resilience is defined by FEMA as the ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. The score is based on 6 factors: 1. Human Well-Being/Cultural/Social; 2. Economic/Financial; 3. Infrastructure/Built Environment/Housing; 4. Institutional/Governance; 5. Community Capacity; and 6. Environmental/Natural.

EPA AIR QUALITY INDEX – (website) Based on the Environmental Protection Agency's Air Quality Index Summary Report, this report provides an annual summary of Air Quality Index (AQI) values for counties or core based statistical areas (CBSA, metropolitan areas in the US). AQI is an indicator of overall air quality. Major air pollutants measured and included in the AQI are ground-level ozone, particle pollution (PM2.5 and PM10), carbon monoxide & nitrogen

dioxide. Each day is categorized in 1 of 5 Air Quality categories based on the value of the AQI on that day, as follows:

Good **AQI**: 0 - 50	Moderate 51 - 100	Unhealthy for Sensitive Groups 101 - 150	Unhealthy for All 151 - 200	Very Unhealthy 201-300	Hazardous 301-500

The RiskFootprint™ meter for the EPA Air Quality Index is based on available data for the previous 10 calendar years. The meter shows the percentage of days at each level of air quality from available data recorded by the EPA over the previous 10 years. For example: 60% "Good" days means that the percentage of days with an AQI between 0 and 50, based on available daily AQI calculations over the previous 10 years, is 60%. The two "Unhealthy" EPA categories have been combined as one "Unhealthy" category in the RFR EPA Air Quality Index Risk Meter.

Further information on the current air quality in your area of interest is available here: https://www.airnow.gov

WILDFIRE POTENTIAL – (website) Data for Wildfire Potential and Annual Burn Probability is based on the US Forest Service's 2024 Wildfire Risk to Communities Product, Risk to Potential Structures dataset.

TORNADO FREQUENCY – (website) Tornado historical data is based on the NOAA National Weather Service (NWS) Storm Prediction Center's (SPC) severe report database, which compiles tornado occurrences.

EARTHQUAKE INTENSITY – (website) Based on the USGS Earthquake Hazard Program - National Seismic Hazard Mapping Project (NSHMP) and depicts areas using peak ground acceleration (PGA) as its parameter and standard gravity (g) as its measure. US Government Sponsored Enterprises such as Fannie Mae require a Seismic Risk Analysis (SRA) report if the Peak Ground Acceleration (PGA) using the 10% in 50-year exceedance probability (the 475-year return period) is greater than or equal to 15% g.

Data sources were obtained from United States Geological Service (USGS) National Seismic Hazard Model Project:
• Continental United States: 2018 https://www.usgs.gov/data/data-release-2018-update-us-national-seismic-hazard-model
• Alaska: 2007 https://www.sciencebase.gov/catalog/item/5da9f42ee4b09fd3b0c9cbd4
• Hawaii: 2021 https://www.usgs.gov/programs/earthquake-hazards/science/us-seismic-hazard-maps-hawaii
• Puerto Rico: 2003 https://www.usgs.gov/programs/earthquake-hazards/science/us-seismic-hazard-maps-puerto-rico-and-us-virgin-islands-samoa

All data are from the 10% exceedance in 50-year occurrence datasets, with Vs30 = 760 m/s (NEHRP B/C boundary). Local soil conditions may significantly amplify or attenuate the ground shaking at the parcel location. The earthquake hazard is limited to ground shaking and does not incorporate any information on potential for earthquake-induced landsliding or liquefaction.

ASCE DESIGN WIND SPEED – (website) The American Society of Civil Engineers (ASCE) creates building codes for residential and commercial structures in the United States. The ASCE Wind Meter is based on ASCE/SEI 7-16, and is the 3- second gust wind speed at 33 ft above ground for Exposure C, Risk Category II buildings. Wind speed corresponds to approximately a 7% probability of exceedance in 50 years.

Special Wind Region
There are special regions in which wind-speed anomalies are known to exist. When selecting basic wind speeds in these special regions, use of regional climatic data and consultation with a wind engineer or meteorologist is advised. (ASCE 7-16).

Hurricane-prone region
Defined in the 2015 and later International Building Code (IBC) as:
- The U.S. Atlantic Ocean and Gulf of Mexico coasts where the ultimate design wind speed, Vult, for Risk Category II buildings is greater than 115 mph (51.4m/s); and;
- Hawaii, Puerto Rico, Guam, Virgin Islands, and American Samoa.

https://www.fema.gov/glossary/hurricane-prone-region

LANDSLIDE SUSCEPTIBILITY – Based on U.S. Geological Survey models that include information on the proportion of susceptible terrain as well as the density (landslides per square kilometer) of documented landslides within susceptible terrain for each U.S. County in the conterminous United States, Alaska, Hawaii and Puerto Rico. The RiskFootprint™ risk categories for landslide susceptibility from Low to Very High represent the number of susceptible 10-meter cells within each 90-meter grid on the USGS terrain maps: **https://www.sciencebase.gov/catalog/item/65ccea5bd34ef4b119cb3bac**

WATER STRESS – Based on **Aqueduct 4.0**, the latest iteration of WRI's water risk framework designed to translate complex hydrological data into intuitive indicators of water-related risk. Baseline water stress measures the ratio of total water demand to available renewable surface and groundwater supplies. Water demand includes domestic, industrial, irrigation, and livestock uses. Available renewable water supplies include the impact of upstream consumptive water users and large dams on downstream water availability.

Property Elevation
First Floor Height (FFH) is an estimate of the height of the first floor above ground level based on data derived from True Flood Risk, Inc.'s Artificial Intelligence (AI) technology. Large buildings may have multiple FFHs because of various access points. For a more detailed study of vulnerabilities, potential in-structure flooding depth and value-at-risk, please contact customerservice@riskfootprint.com

Page 9 – **FUTURE CLIMATE CHANGE IMPACTS IN 2030, 2040 & 2050 –** Projections for Future Extreme Heat, Extreme Rainfall & Drought impacts were derived from data downscaled from 32 General Circulation Models (GCMs) using LOCA (Localized Constructed Analogs), a statistical downscaling

COASTAL RISK

RISK FOOTPRINT™

technique that improves the detail of data from GCMs. LOCA was developed and implemented by a team including representatives from NASA, US Army Corps of Engineers, University of Colorado and Scripps Institution of Oceanography. Using LOCA, the 32 GCMs were downscaled from the CMIP5 archive at a 1/16th degree spatial resolution. http://loca.ucsd.edu/.

a. Extreme Heat

Extreme heat risks related to the projected increase in maximum daily air temperature. Datasets from Representative Concentration Pathways 4.5 and 8.5* are used to determine the percentage change in number of days per year for annual maximum daily air temperature greater than 85°F (~29.44° Celsius) averaged over 2026-2030, 2036-2040 and 2046-2050 compared with no. of days per year averaged over 2021-2025.

b. Extreme Rainfall

Extreme rainfall risks related to the projected increase in maximum daily rainfall (precipitation). Datasets from Representative Concentration Pathway 4.5 and 8.5* are used to determine the percentage change in annual maximum daily precipitation averaged over 2026-2030, 2036-2040 and 2046-2050 compared with the annual maximum daily precipitation averaged over 2021-2025.

c. Drought

Drought risk as measured by the 12-month Standard Precipitation Index (SPI), to characterize meteorological drought on a range of timescales. The SPI calculation for any location is based on the long-term precipitation record for the specific period. A 12- month SPI is a comparison of the precipitation for 12 consecutive months with the same 12 consecutive months during all the previous years of available data. https://www.in.gov/dnr/water/water-availability-use-rights/water-resource-updates/monthly-water-resource-summary/explanation-of-standard-precipitation-index-spi/

*Representative Concentration Pathways (RCPs)

Values of Representative Concentration Pathway (RCP) represent the range of greenhouse gas emissions. RCP 4.5 refers to an intermediate emission scenario while RCP 8.5 refers to a high emission scenario. In this report, we do not include RCP 2.6 because it's a stringent emission scenario which is very unlikely based on current trends.

Note: Possible non-linear trend in severity of climate impacts for certain locations: The Ranking Guidelines for Low, Medium, and High are based on the % of models that show results within a certain range. Also, although projections of future temperature trends are generally linear, increasing heat creates changes in atmospheric conditions that may impact projected trends of extreme rainfall and drought over certain time periods. As a result of a combination of these factors, projections of extreme rainfall and drought may not always show a linear trend in severity for the next few decades.

Note: Apparent contradictions in different datasets: The RiskFootprint™ Report is comprised of both proprietary and open- source datasets. The various hazard scores and risk assessments included in the Report may be shown at different levels of granularity or specificity and measured over varying time frames. The different bases and methodologies used may lead to apparent contradictions. For example, a FEMA 100-year flood Base Flood Elevation (BFE) may not be the same as a NOAA storm surge height for the same return period. The National Risk Index (NRI) Strong Wind rating at the Census Tract level may not be the same as the ASCE Design Wind Speed at a specific building address. Accordingly, RiskFootprint™ Users are advised to consider the hazard assessments and risk scores in the Report only as starting points in the Property Resilience Assessment (PRA) Process.

For further information on Property Resilience Assessments, RiskFootprint™ Scoring Methods or annual Dashboard subscriptions, please contact Customer Service at 844-732-7473 or email at customerservice@riskfootprint.com.
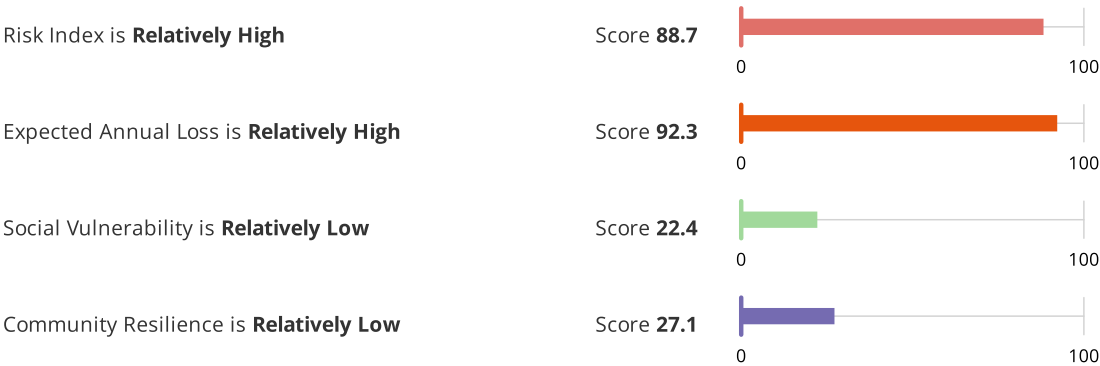

Property Resilience Assessment Process
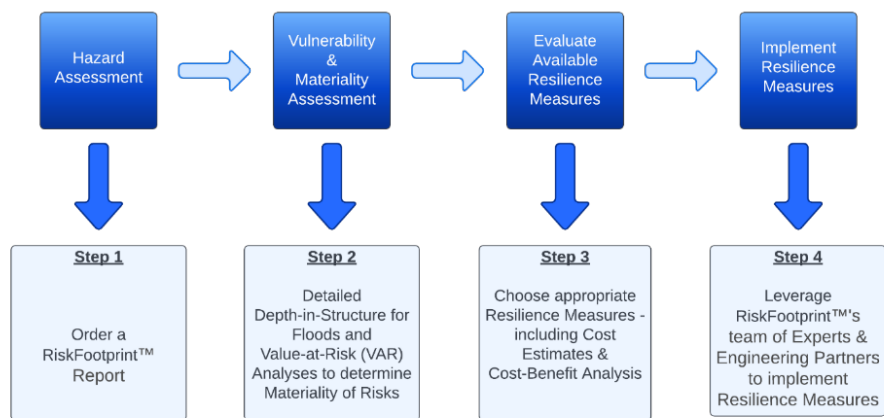
National Risk Index

February 27, 2025

Census tract 12086004106, Miami-Dade County, Florida

Summary

Risk Index is **Relatively High**

Score **88.7**

Expected Annual Loss is **Relatively High**

Score **92.3**

Social Vulnerability is **Relatively Low**

Score **22.4**

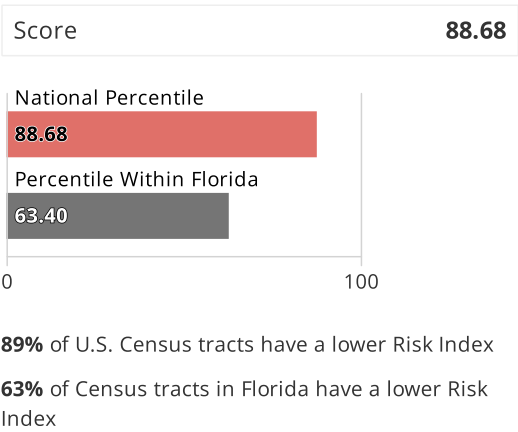Community Resilience is **Relatively Low**

Score **27.1**

While reviewing this report, keep in mind that low risk is driven by lower loss due to natural hazards, lower social vulnerability, and higher community resilience.

For more information about the National Risk Index, its data, and how to interpret the information it provides, please review the **About the National Risk Index** and **How to Take Action** sections at the end of this report. Or, visit the National Risk Index website at **hazards.fema.gov/nri/learn-more** to access supporting documentation and links.

Risk Index

The Risk Index rating is **Relatively High** for **Census tract 12086004106** when compared to the rest of the U.S.

Score	88.68

National Percentile

88.68

Percentile Within Florida

63.40

89% of U.S. Census tracts have a lower Risk Index

63% of Census tracts in Florida have a lower Risk Index
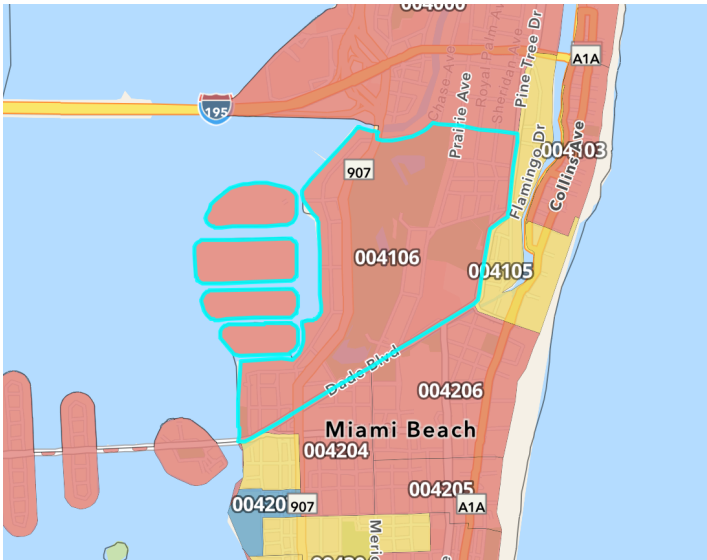
Risk Index Legend

🟥 Very High	🟧 Relatively High	🟨 Relatively Moderate	🟦 Relatively Low	🟦 Very Low
⬜ No Rating	⬜ Not Applicable	⬛ Insufficient Data		

Hazard Type Risk Index

Hazard type Risk Index scores are calculated using data for only a single hazard type, and reflect a community's Expected Annual Loss value, community risk factors, and the adjustment factor used to calculate the risk value.

Hazard Type	Risk Index Rating	Risk Index Score	National Percentile
Avalanche	Not Applicable	--	
Coastal Flooding	Relatively Moderate	93.4	0 ▭ 100
Cold Wave	Relatively Low	45.1	0 ▭ 100
Drought	No Rating	0	0 ▭ 100
Earthquake	Very Low	0.9	0 ▭ 100
Hail	Very Low	3.2	0 ▭ 100
Heat Wave	No Rating	0	0 ▭ 100
Hurricane	Relatively High	94.1	0 ▭ 100
Ice Storm	Not Applicable	--	
Landslide	Relatively Low	62.8	0 ▭ 100
Lightning	Relatively Moderate	55.1	0 ▭ 100
Riverine Flooding	Relatively High	93	0 ▭ 100
Strong Wind	Very Low	10.5	0 ▭ 100
Tornado	Relatively Low	37.7	0 ▭ 100
Tsunami	Insufficient Data	--	
Volcanic Activity	Not Applicable	--	
Wildfire	No Rating	0	0 ▭ 100
Winter Weather	No Rating	0	0 ▭ 100

Risk Factor Breakdown

Hazard Type	EAL Value	Social Vulnerability	Community Resilience	CRF	Risk Value	Risk Index Score
Hurricane	$2,024,420	Relatively Low	Relatively Low	0.92	$1,858,504	94.1
Riverine Flooding	$274,706	Relatively Low	Relatively Low	0.92	$252,192	93
Coastal Flooding	$33,513	Relatively Low	Relatively Low	0.92	$30,766	93.4
Tornado	$32,142	Relatively Low	Relatively Low	0.92	$29,508	37.7
Lightning	$7,871	Relatively Low	Relatively Low	0.92	$7,226	55.1
Landslide	$967	Relatively Low	Relatively Low	0.92	$887	62.8
Cold Wave	$401	Relatively Low	Relatively Low	0.92	$368	45.1
Strong Wind	$344	Relatively Low	Relatively Low	0.92	$316	10.5
Earthquake	$113	Relatively Low	Relatively Low	0.92	$103	0.9
Hail	$22	Relatively Low	Relatively Low	0.92	$20	3.2
Drought	$0	Relatively Low	Relatively Low	0.92	$0	0
Heat Wave	$0	Relatively Low	Relatively Low	0.92	$0	0
Wildfire	$0	Relatively Low	Relatively Low	0.92	$0	0
Winter Weather	$0	Relatively Low	Relatively Low	0.92	$0	0
Avalanche	--	Relatively Low	Relatively Low	0.92	--	--
Ice Storm	--	Relatively Low	Relatively Low	0.92	--	--
Tsunami	--	Relatively Low	Relatively Low	0.92	--	--
Volcanic Activity	--	Relatively Low	Relatively Low	0.92	--	--

Expected Annual Loss

In **Census tract 12086004106**, expected loss each year due to natural hazards is **Relatively High** when compared to the rest of the U.S.

Score	92.29

National Percentile

92.29

Percentile Within Florida

77.80

0   100

92% of U.S. Census tracts have a lower Expected Annual Loss

78% of Census tracts in Florida have a lower Expected Annual Loss

Expected Annual Loss Legend

■ Very High   ■ Relatively High   ■ Relatively Moderate   ■ Relatively Low   ■ Very Low

□ No Expected Annual Losses   ■ Not Applicable   ■ Insufficient Data
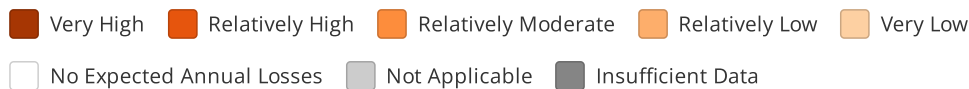
Composite Expected Annual Loss	**$2,374,498.37**

Composite Expected Annual Loss Rate National Percentile	**90.3**

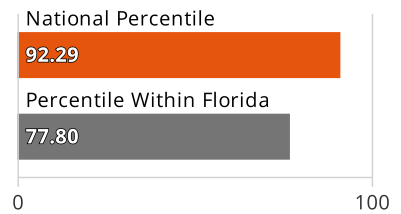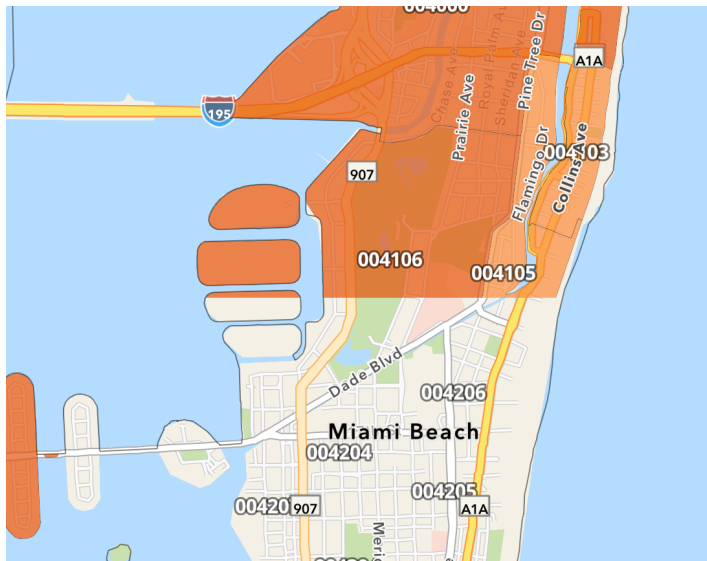| Building EAL	**$2,192,172.65**	Population EAL	**0.02** fatalities
Building EAL Rate	**$1 per $389.86 of building value**	Population EAL Rate	**1 per 204.86K people**
Agriculture EAL	**$0.00**	Population Equivalence EAL	**$182,325.72**
Agriculture EAL Rate	**--**		

Expected Annual Loss for Hazard Types

Expected Annual Loss scores for hazard types are calculated using data for only a single hazard type, and reflect a community's relative expected annual loss for only that hazard type.

14 of 18 hazard types contribute to the expected annual loss for **Census tract 12086004106**.

Hazard Type	Expected Annual Loss Rating	EAL Value	Score
Hurricane	Very High	$2,024,420	95.6
Riverine Flooding	Relatively High	$274,706	94.4

Hazard Type	Expected Annual Loss Rating	EAL Value	Score
Coastal Flooding	Relatively Moderate	$33,513	93.5
Tornado	Relatively Low	$32,142	41.3
Lightning	Relatively Moderate	$7,871	60.0
Landslide	Relatively Low	$967	64.7
Cold Wave	Relatively Low	$401	46.2
Strong Wind	Very Low	$344	14.1
Earthquake	Very Low	$113	1.1
Hail	Very Low	$22	4.5
Drought	No Expected Annual Losses	$0	0.0
Heat Wave	No Expected Annual Losses	$0	0.0
Wildfire	No Expected Annual Losses	$0	0.0
Winter Weather	No Expected Annual Losses	$0	0.0
Avalanche	Not Applicable	--	--
Ice Storm	Not Applicable	--	--
Tsunami	Insufficient Data	--	--
Volcanic Activity	Not Applicable	--	--

Expected Annual Loss Values

Hazard Type	Total	Building Value	Population Equivalence	Population	Agriculture Value
Avalanche	--	--	--	--	--
Coastal Flooding	$33,513	$8,757	$24,756	0.00	n/a
Cold Wave	$401	$7	$393	0.00	$0
Drought	$0	n/a	n/a	n/a	$0
Earthquake	$113	$86	$26	0.00	n/a
Hail	$22	$3	$19	0.00	$0
Heat Wave	$0	$0	$0	0.00	$0
Hurricane	$2,024,420	$1,923,019	$101,401	0.01	$0
Ice Storm	--	--	--	--	--
Landslide	$967	$911	$56	0.00	n/a
Lightning	$7,871	$92	$7,780	0.00	n/a

Hazard Type	Total	Building Value	Population Equivalence	Population	Agriculture Value
Riverine Flooding	$274,706	$242,988	$31,719	0.00	$0
Strong Wind	$344	$20	$324	0.00	$0
Tornado	$32,142	$16,290	$15,852	0.00	$0
Tsunami	n/a	n/a	n/a	n/a	n/a
Volcanic Activity	--	--	--	--	--
Wildfire	$0	$0	$0	0.00	$0
Winter Weather	$0	$0	$0	0.00	$0

Exposure Values

Hazard Type	Total	Building Value	Population Equivalence	Population	Agriculture Value
Avalanche	--	--	--	--	--
Coastal Flooding	$58,429,588,911	$1,314,187,052	$57,115,401,860	4,923.74	n/a
Cold Wave	$30,666,098,852	$622,098,852	$30,044,000,000	2,590.00	$0
Drought	$0	n/a	n/a	n/a	$0
Earthquake	$38,206,628,000	$854,628,000	$37,352,000,000	3,220.00	n/a
Hail	$38,206,638,871	$854,638,871	$37,352,000,000	3,220.00	$0
Heat Wave	$0	$0	$0	0.00	$0
Hurricane	$38,206,638,871	$854,638,871	$37,352,000,000	3,220.00	$0
Ice Storm	--	--	--	--	--
Landslide	$3,688,892,915	$121,744,039	$3,567,148,876	307.51	n/a
Lightning	$38,206,638,871	$854,638,871	$37,352,000,000	3,220.00	n/a
Riverine Flooding	$38,206,617,038	$854,638,871	$37,351,978,167	3,220.00	$0
Strong Wind	$38,206,638,871	$854,638,871	$37,352,000,000	3,220.00	$0
Tornado	$38,206,638,871	$854,638,871	$37,352,000,000	3,220.00	$0
Tsunami	n/a	n/a	n/a	n/a	n/a
Volcanic Activity	--	--	--	--	--
Wildfire	$0	$0	$0	0.00	$0
Winter Weather	$0	$0	$0	0.00	$0

Annualized Frequency Values

Hazard Type	Annualized Frequency	Events on Record	Period of Record
Avalanche	--	--	--
Coastal Flooding	3.1 events per year	n/a	Various (see documentation)
Cold Wave	0.1 events per year	1	2005-2021 (16 years)
Drought	7 events per year	154	2000-2021 (22 years)
Earthquake	0.013% chance per year	n/a	2021 dataset
Hail	1.2 events per year	21	1986-2021 (34 years)
Heat Wave	0 events per year	0	2005-2021 (16 years)
Hurricane	0.6 events per year	27	East 1851-2021 (171 years) / West 1949-2021 (73 years)
Ice Storm	--	--	--
Landslide	0 events per year	0	2010-2021 (12 years)
Lightning	215.2 events per year	2,296	1991-2012 (22 years)
Riverine Flooding	2.3 events per year	55	1996-2019 (24 years)
Strong Wind	1.7 events per year	28	1986-2021 (34 years)
Tornado	0 events per year	0	1950-2021 (72 years)
Tsunami	n/a	n/a	1800-2021 (222 years)
Volcanic Activity	--	--	--
Wildfire	0% chance per year	n/a	2021 dataset
Winter Weather	0 events per year	0	2005-2021 (16 years)

Historic Loss Ratios

Hazard Type	Overall Rating
Avalanche	--
Coastal Flooding	Very Low
Cold Wave	Very Low
Drought	No Rating
Earthquake	Very Low
Hail	Very Low
Heat Wave	No Rating
Hurricane	Relatively Moderate
Ice Storm	--
Landslide	Relatively Low

Hazard Type	Overall Rating
Lightning	Very Low
Riverine Flooding	Very Low
Strong Wind	Very Low
Tornado	Relatively Moderate
Tsunami	Insufficient Data
Volcanic Activity	--
Wildfire	No Rating
Winter Weather	No Rating

Expected Annual Loss Rate

Hazard Type	Building EAL Rate (per building value)	Population EAL Rate (per population)	Agriculture EAL Rate (per agriculture value)
Avalanche	--	--	--
Coastal Flooding	$1 per $97.60K	1 per 1.51M	--
Cold Wave	$1 per $118.31M	1 per 94.96M	--
Drought	--	--	--
Earthquake	$1 per $9.90M	1 per 1.41B	--
Hail	$1 per $313.58M	1 per 1.94B	--
Heat Wave	--	--	--
Hurricane	$1 per $444.43	1 per 368.36K	--
Ice Storm	--	--	--
Landslide	$1 per $937.95K	1 per 672.45M	--
Lightning	$1 per $9.33M	1 per 4.80M	--
Riverine Flooding	$1 per $3.52K	1 per 1.18M	--
Strong Wind	$1 per $42.86M	1 per 115.26M	--
Tornado	$1 per $52.46K	1 per 2.36M	--
Tsunami	--	--	--
Volcanic Activity	--	--	--
Wildfire	--	--	--
Winter Weather	--	--	--

Social Vulnerability

Social groups in **Census tract 12086004106** have a **Relatively Low** susceptibility to the adverse impacts of natural hazards when compared to the rest of the U.S.

Score	22.44

National Percentile

22.44

Percentile Within Florida

16.10

0 ————————————————— 100
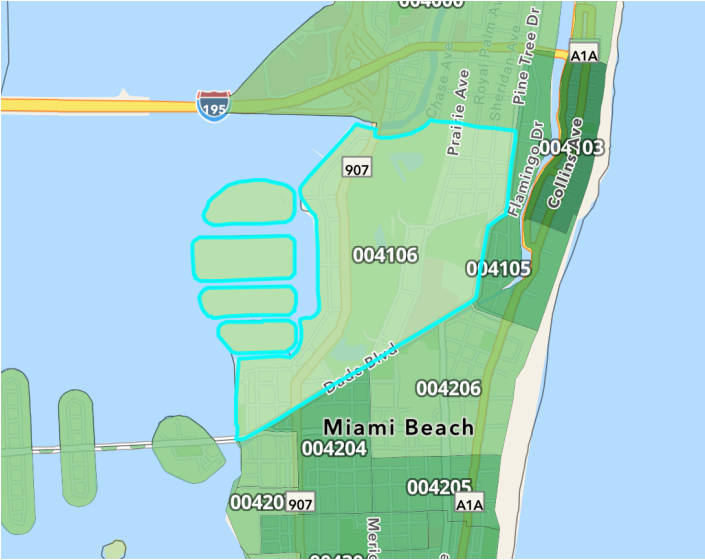
**22%** of U.S. Census tracts have a lower Social Vulnerability

16% of Census tracts in Florida have a lower Social Vulnerability

Social Vulnerability Legend

■ Very High   ■ Relatively High   ■ Relatively Moderate   ■ Relatively Low   ☐ Very Low

■ Data Unavailable

Community Resilience

Communities in **Census tract 12086004106** have a **Relatively Low** ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the U.S.

Score	27.06

National Percentile
27.06

Percentile Within Florida
54.90

0 — 100

73% of U.S. Census tracts have a higher Community Resilience

45% of Census tracts in Florida have a higher Community Resilience

Community Resilience Legend

☐ Very High   ☐ Relatively High   ☐ Relatively Moderate   ☐ Relatively Low   ■ Very Low

☐ Data Unavailable
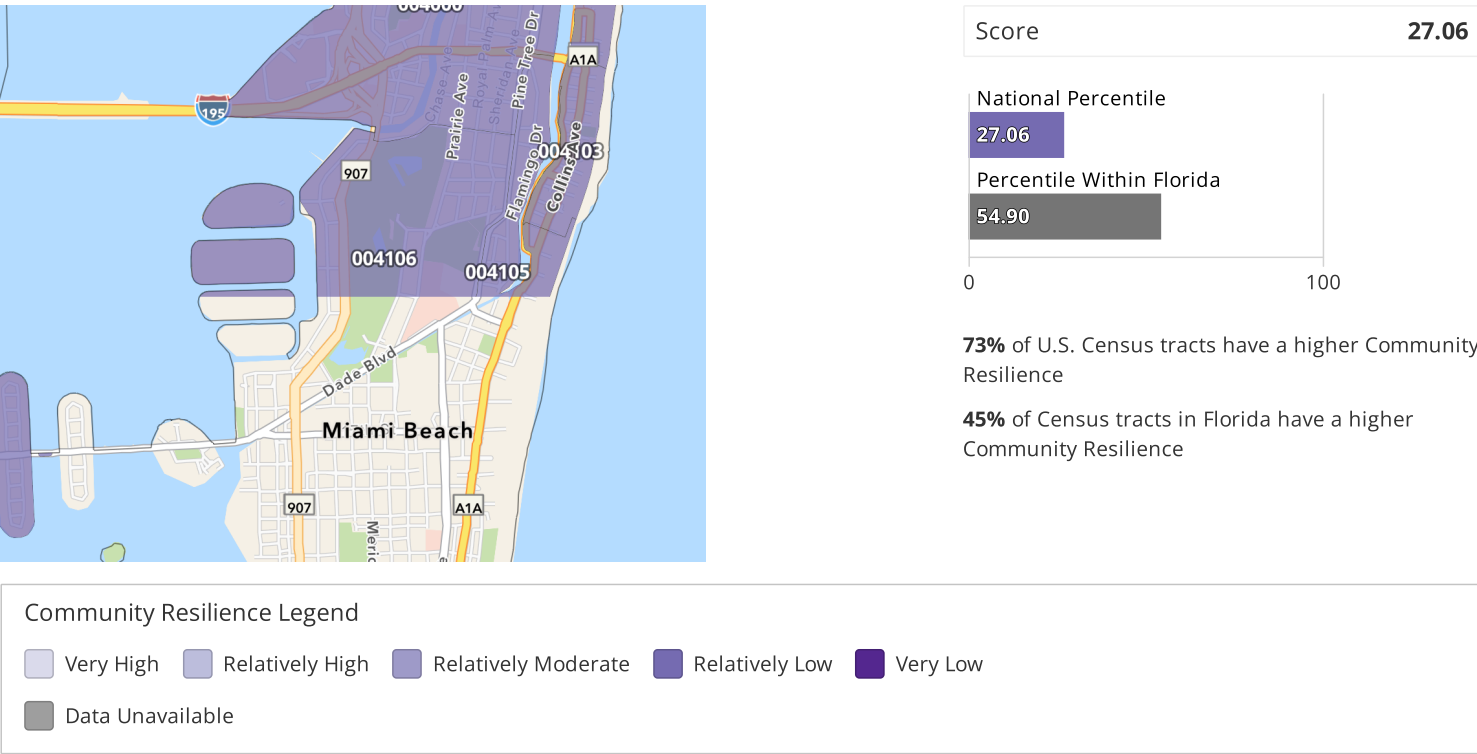
About the National Risk Index

The National Risk Index is a dataset and online tool to help illustrate the United States communities most at risk for 18 natural hazards: Avalanche, Coastal Flooding, Cold Wave, Drought, Earthquake, Hail, Heat Wave, Hurricane, Ice Storm, Landslide, Lightning, Riverine Flooding, Strong Wind, Tornado, Tsunami, Volcanic Activity, Wildfire, and Winter Weather.

The National Risk Index leverages available source data for Expected Annual Loss due to these 18 hazard types, Social Vulnerability, and Community Resilience to develop a baseline relative risk measurement for each United States county and Census tract. These measurements are calculated using average past conditions, but they cannot be used to predict future outcomes for a community. The National Risk Index is intended to fill gaps in available data and analyses to better inform federal, state, local, tribal, and territorial decision makers as they develop risk reduction strategies.

Explore the National Risk Index Map at **hazards.fema.gov/nri/map**.

Visit the National Risk Index website at **hazards.fema.gov/nri/learn-more** to access supporting documentation and links.

Calculating the Risk Index

Risk Index values are calculated using an equation* that combines values for Expected Annual Loss (EAL) due to natural hazards, with the Community Risk Factor (CRF), which is a function of Social Vulnerability and Community Resilience:

$$\text{Risk Index} = \text{Expected Annual Loss} \times \text{Community Risk Factor}$$

$$\text{where Community Risk Factor} = f\left(\frac{\text{Social Vulnerability}}{\text{Community Resilience}}\right)$$

*County-level risk values are derived by summing the risk values of all census tracts within that county.

Risk is presented as a composite value and score for all 18 hazard types, as well as individual values and scores for each hazard type.

For more information, visit hazards.fema.gov/nri/determining-risk.

Calculating Expected Annual Loss

Expected Annual Loss values are calculated using an equation* that combines values for exposure, annualized frequency, and historic loss ratios for 18 hazard types:

$$\text{Expected Annual Loss} = \text{Exposure} \times \text{Annualized Frequency} \times \text{Historic Loss Ratio}$$

*Excluding Avalanche, Drought, Earthquake, and Tornado, EAL values for each hazard are calculated at the Census block level and summed together to determine Census tract and county-level hazard type EAL values.

Expected Annual Loss is presented as a composite value and score for all 18 hazard types, as well as individual values and scores for each hazard type.

For more information, visit hazards.fema.gov/nri/expected-annual-loss.

Calculating Social Vulnerability

Social Vulnerability is measured using the Social Vulnerability Index (SVI) published by the Centers for Disease Control and Prevention (CDC).

For more information, visit hazards.fema.gov/nri/social-vulnerability.

Calculating Community Resilience

Community Resilience is measured at the County level using the Baseline Resilience Indicators for Communities (HVRI BRIC) published by the University of South Carolina's Hazards and Vulnerability Research Institute (HVRI).

For more information, visit hazards.fema.gov/nri/community-resilience.

Values, Scores, and Ratings

The National Risk Index provides three different types of results for Risk and each component used to derive Risk: EAL, Social Vulnerability, and Community Resilience:

Values. Values for Risk and EAL are in units of dollars, representing the community's average economic loss from natural hazards each year. For Social Vulnerability and Community Resilience, values are the index values for the community provided by the source data sets.

Scores. Scores represent the national percentile ranking of the community's component value compared to all other communities at the same level (county or Census tract).

Ratings. Ratings refer to the qualitative terms that describe the relative risk of an area within the same geographic level. These rating categories range from "Very Low" to "Very High". Ratings for Social Vulnerability and Community Resilience are based on quintiles of those components' scores, while Risk and EAL ratings are based on more advanced statistical calculations on values . As a result, there is no fixed range of scores or values that correspond to the rating categories.

How to Take Action

There are many ways to reduce natural hazard risk through mitigation. Communities with high National Risk Index scores can take action to reduce risk by decreasing Expected Annual Loss due to natural hazards, decreasing Social Vulnerability, and increasing Community Resilience.

For information about how to take action and reduce your risk, visit hazards.fema.gov/nri/take-action.

Disclaimer

The National Risk Index (the Risk Index or the Index) and its associated data are meant for planning purposes only. This tool was created for broad nationwide comparisons and is not a substitute for localized risk assessment analysis. Nationwide datasets used as inputs for the National Risk Index are, in many cases, not as accurate as available local data. Users with access to local data for each National Risk Index risk factor should consider substituting the Risk Index data with local data to recalculate a more accurate risk index. If you decide to download the National Risk Index data and substitute it with local data, you assume responsibility for the accuracy of the data and any resulting data index. Please visit the Contact Us page if you would like to discuss this process further.

The methodology used by the National Risk Index has been reviewed by subject matter experts in the fields of natural hazard risk research, risk analysis, mitigation planning, and emergency management. The processing methods used to create the National Risk Index have produced results similar to those from other natural hazard risk analyses conducted on a smaller scale. The breadth and combination of geographic information systems (GIS) and data processing techniques leveraged by the National Risk Index enable it to incorporate multiple hazard types and risk factors, manage its nationwide scope, and capture what might have been missed using other methods.

The National Risk Index does not consider the intricate economic and physical interdependencies that exist across geographic regions. Keep in mind that hazard impacts in surrounding counties or Census tracts can cause indirect losses in your community regardless of your community's risk profile.

Nationwide data available for some risk factors are rudimentary at this time. The risk profiles for the vast majority of hazard types are based on historical frequency and loss data. They represent risk and expected annual loss based on average past conditions, not future predictions; therefore, they may not fully consider the potential impacts of recent changes to the environment, including anthropomorphic landscape changes, or climate change. The National Risk Index will be continuously updated as new data become available and improved methodologies are identified.

For comprehensive details about how the Risk Index can help you and its limitations, see the National Risk Index Technical Documentation

Assumption of Risk

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